



## LABORATORY NOTEBOOK

SERIAL No. RLA N° 10512

ASSIGNED TO Michael DeRosa DEPT. Polymer Core Technology

FROM \_\_\_\_\_ TO \_\_\_\_\_

LAST PREVIOUS NOTEBOOK SERIAL No. 10345

LAST ENTRY \_\_\_\_\_ PAGE 154 DATE \_\_\_\_\_

SUCCEEDING NOTEBOOK 10695

FIRST ENTRY DATE \_\_\_\_\_

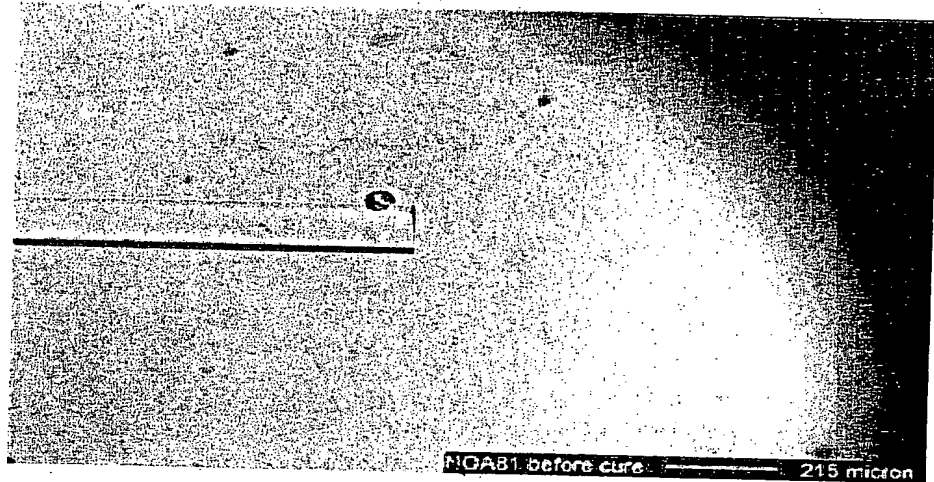
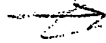
FILE Cure of Adhesive Through Fiber DATE \_\_\_\_\_

IRPDSE Cure NOA81 UV curable adhesive at end of SMF28.

FFP01 End Fire pigtail 01

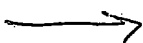
*maxwell*

Before  
Cure.

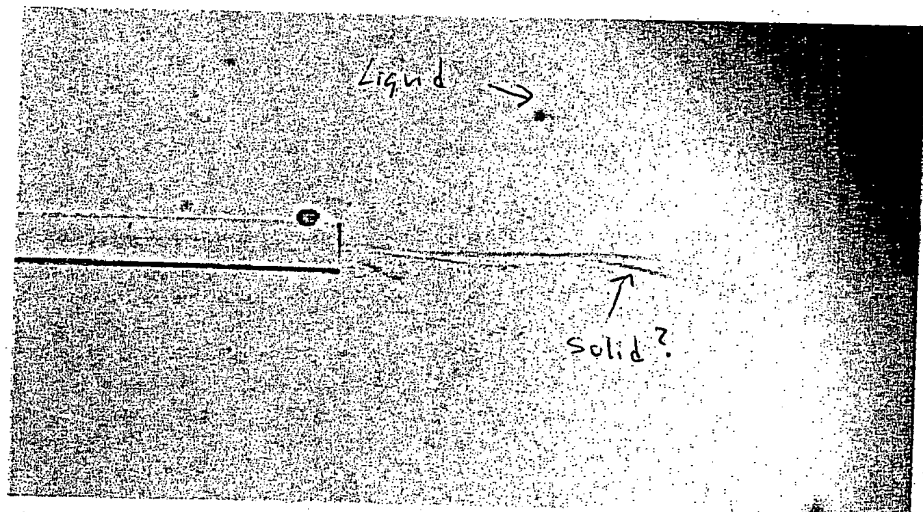


After  
Cure

UV  
into fiber.



Zoom with  
GreenSpot.

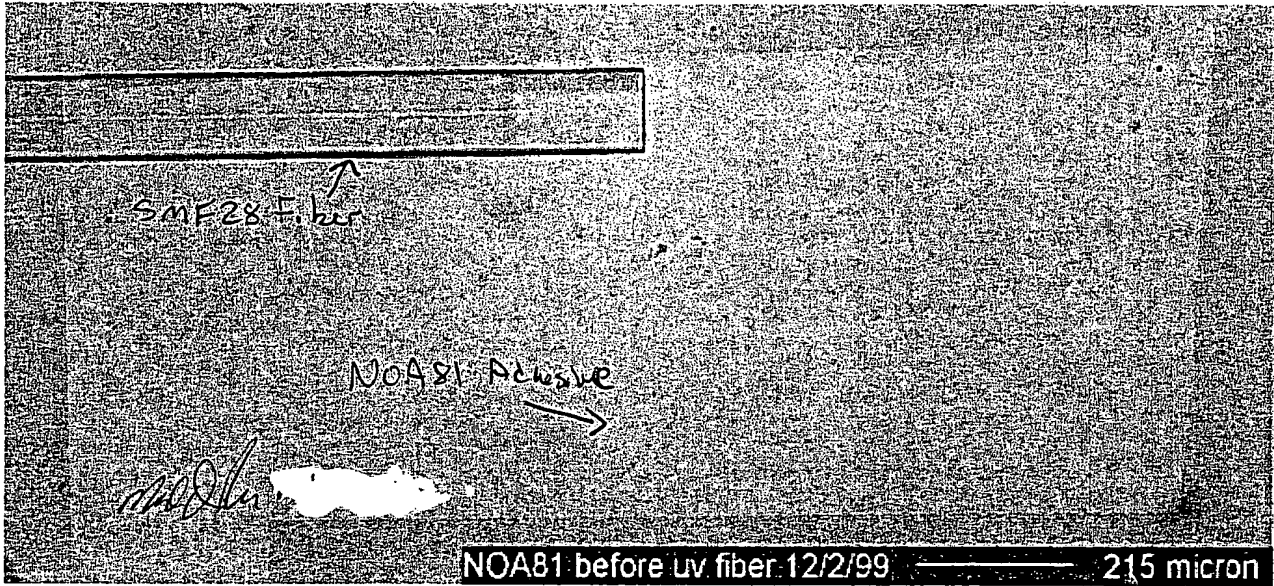


Adhesive appears to be cured in a tight cylinder at end of fiber

Object No.		Signature <i>maxwell</i>		Date
Witnessed By	Date	Witnessed By	Date	

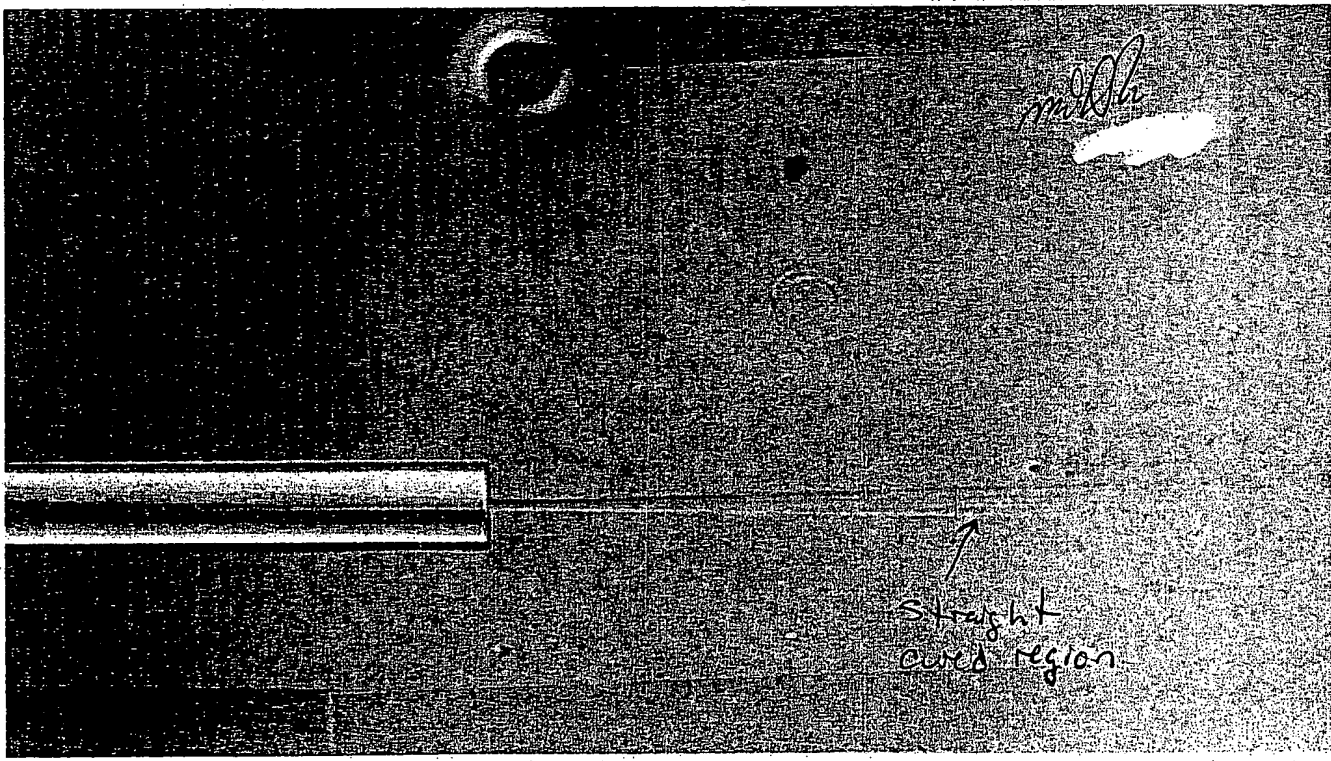
LE UV Fiber End Fire Cure Technique DATE \_\_\_\_\_

RPOSE EFPOZ



Before  
End Fire  
UV cure

Pre uv Flood drop end of fiber for 30s to pre lock in next as a gel so I won't get convection currents during end fire cure



Fire  
→  
h  
engot  
12/6/99

UV end fire Cured. Will the cured region wave guide?

Project No.		Signature <i>msd</i>		Date
Witnessed By	Date	Witnessed By	Date	

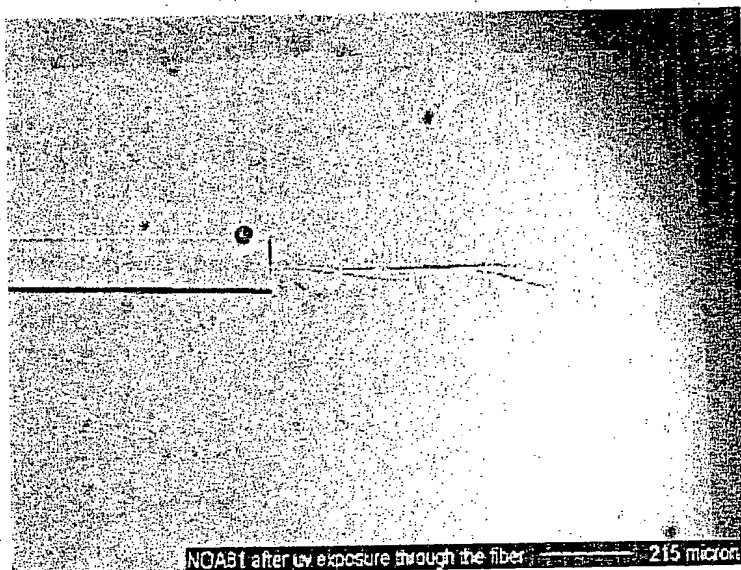
TITLE UV EndFire Cure

DATE \_\_\_\_\_

PURPOSE Comparison of precuring to liquid.

12/3/99 I tried shooting a HeNe down the sample. I could see red light coming out end on. But I could not see it perpendicular. No enough scatter.

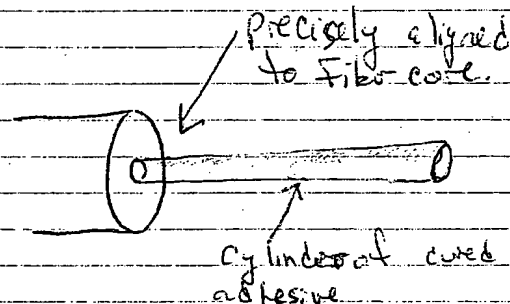
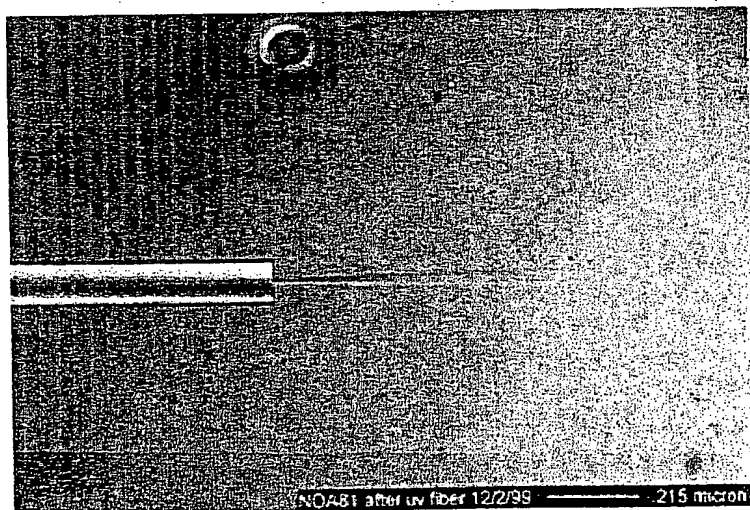
UV  
EndFire  
→



Liquid.

Swirly pattern  
due to convection  
of uncured liquid.

UV  
EndFire  
→



Precured  
Gel.

The gel locks in the structure so no convection currents can make swirls as above in liquid state.

Maybe a process used for pig tailing.

Project No.		Signature <i>mmlsh</i>		Date
Witnessed By		Date	Witnessed By	

TLE Endfire cure of adhesive DATE \_\_\_\_\_

JRPOSE \_\_\_\_\_

Sample EFPO3 (Endfire pigtail 02)

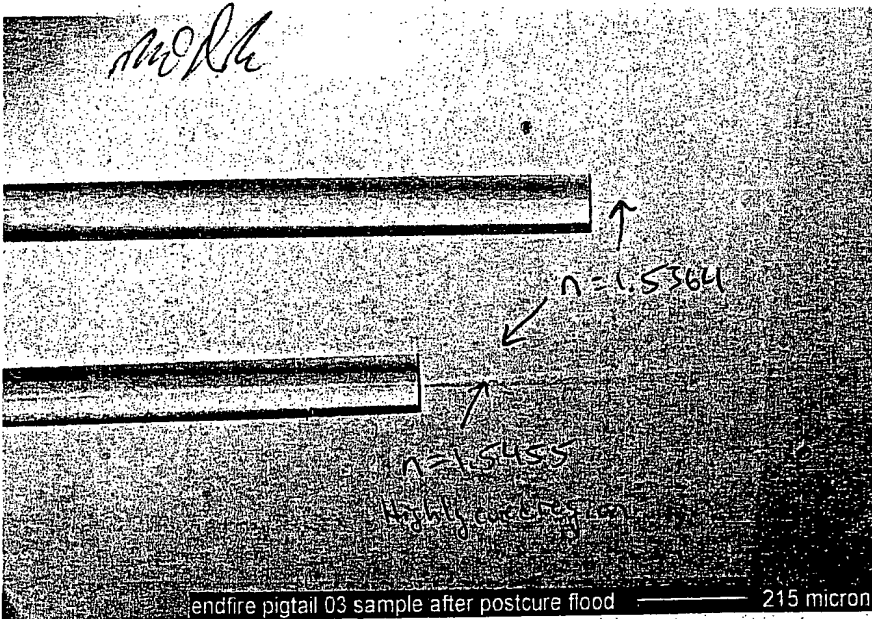
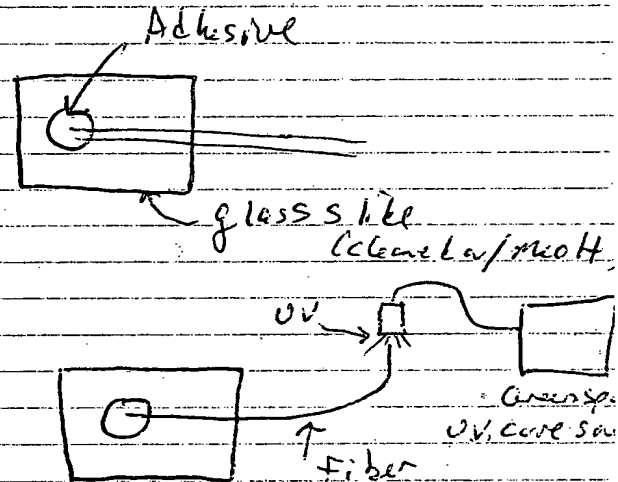
Material : NOA 81 Lot 127

Flood to pregel with 30w lamp for 30s @ 4cm distance.

Use two flat cleaved fibers

After pregel stage, endfire cure one pigtail for 2min with GreenSpot.

After endfire cure, post-flood light the sample with 30w lamp for 2min to lock in structure.



Project No. _____		Signature <u>[Signature]</u>		Date _____
Witnessed By _____		Date _____	Witnessed By _____	

Simultaneous End Fire Curing

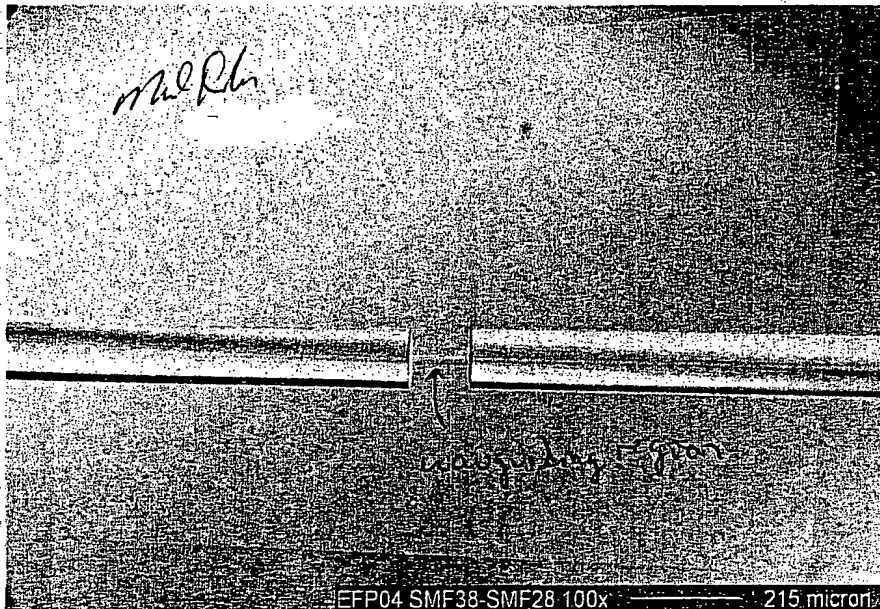
DATE

DSE

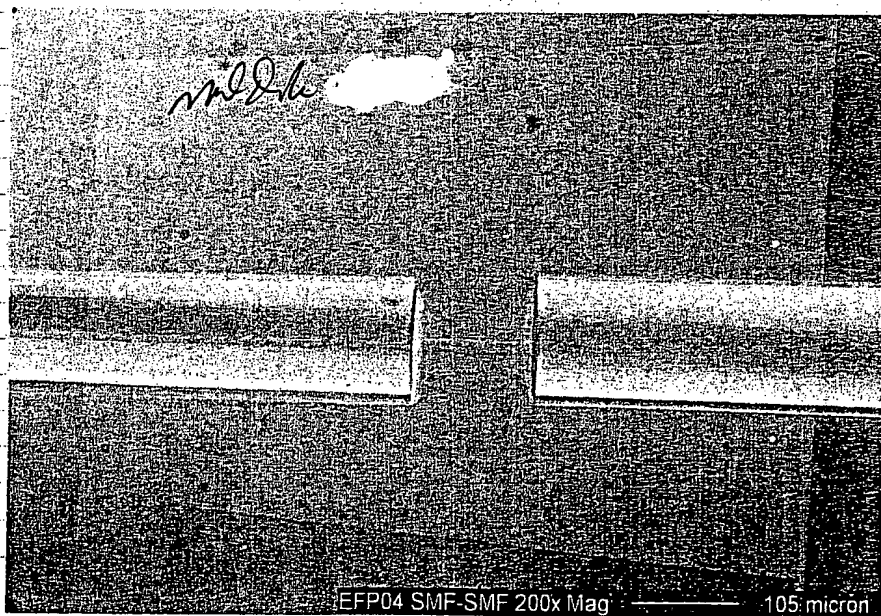
SMF28-SMF28

NOA 81

EFP04



100x mag.



Possible Names

Billseye<sup>®</sup> digital technologyGhost splice<sup>®</sup>Phantom splice<sup>®</sup>

200x mag.

Index difference  
is good enough to  
guide light.

Object No.

Signature

mld Rb

Date

Witnessed By

Date

Witnessed By

Date



EFPOS Sample Before + After

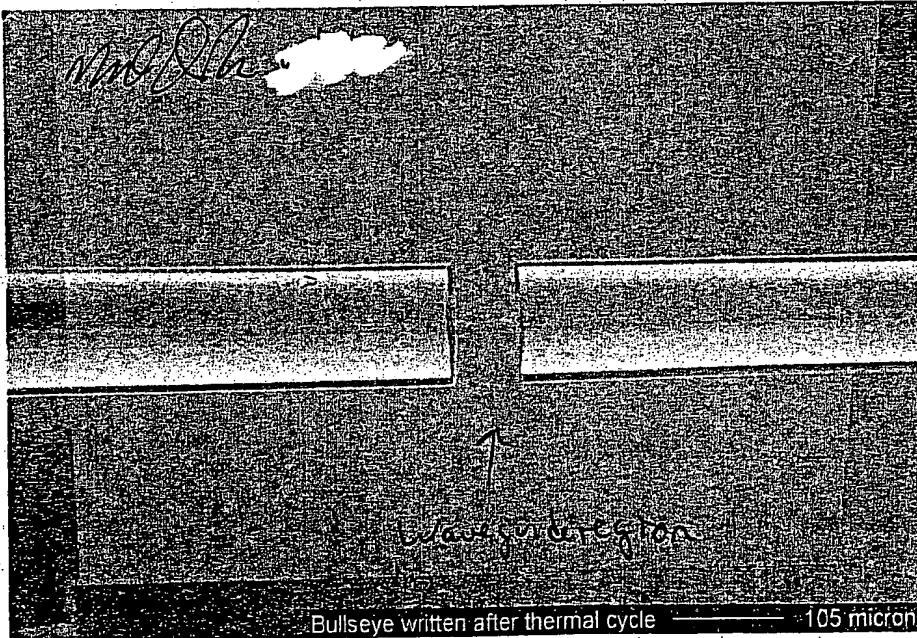
DATE \_\_\_\_\_

OSE \_\_\_\_\_

EFPOS Before + After Bullseye Processing



SmF28-SmF28  
Gap. This sample  
went through thermal cycling  
on page 79.

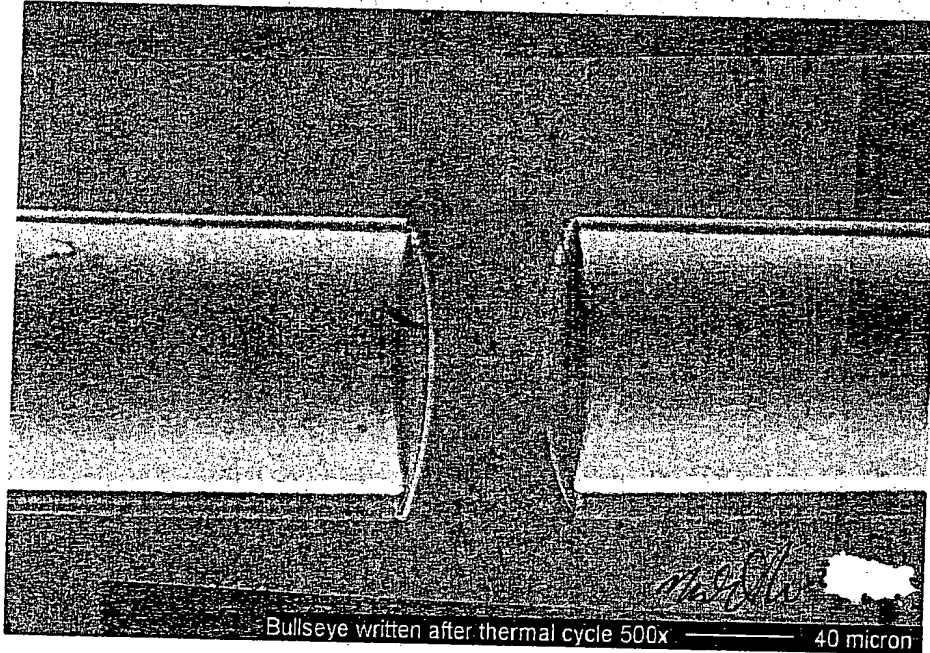


After thermal cycling  
I wrote a Bullseye waveguide  
between the two fibers

ect No.		Signature <i>mld</i>		Date
essed By	Date	Witnessed By		Date

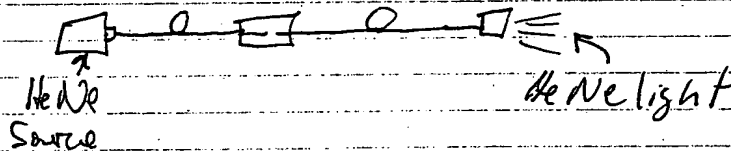
TITLE EFPOS After Bulseye Written DATE \_\_\_\_\_

PURPOSE EFPOS After Bulseye



Same ~~as~~ sample as  
page 82 this notebook.  
500x magnification

12/8/69. Used a fault locating pre-tailed HeNe laser. I could not see any reflections in the Bulseye joint. The light came at the other end of the other connector very bright.

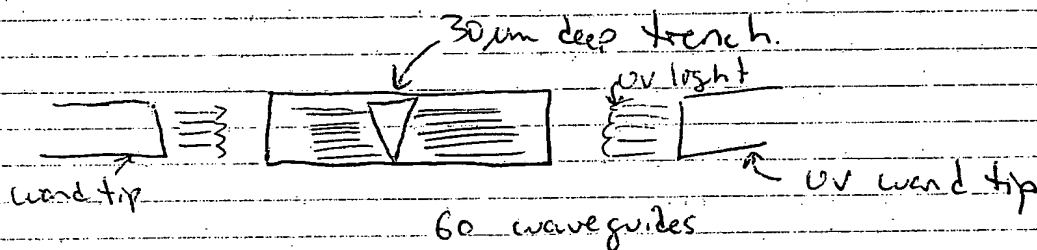


Project No. _____		Signature <u>MAH</u>		Date _____
Witnessed By _____		Date _____	Witnessed By _____	
			Date _____	



TITLE LOC Athermalization Device

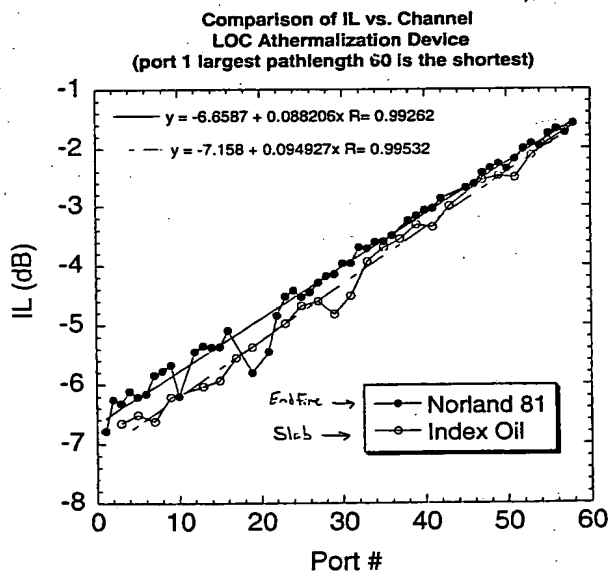
DATE \_\_\_\_\_

PURPOSE To see if endfire curing improves loss in LOC device

Fill trench with index oil to make slab waveguide.

Use NDA 81 + endfire by placing uv wands (1x2 Green) at end of fused silica block device.

*mol/ln*



Slope decreased by 7.1%  
From slab to endfire cure.

The endfire technique improved the loss modestly at the largest gap.

No change seen at shortest gap.

Slope decreased by 7.1%

Want slope to be flat across.

This method did not work most likely because UV overflowed the fused silica block.

Try butt coupling fibers to each channel, actively align, then UV endfire cure to write waveguides.

Slight improvement in loss across the device

Project No.	Signature <i>mol/ln</i>		Date
Witnessed By	Date	Witnessed By	Date